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ABSTRACT

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Visualization and Rational-Emotive Therapy as Interventions for Communication Apprehension

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Abstract

This study examined the effects of rational-emotive therapy (RET) and visualization as interventions to reduce communication apprehension as measured by the Personal Report of Communication Anxiety-25. Forty-seven students were randomly assigned to one of three groups: RET, visualization, or an attention-placebo group. The RET group listened to a 20 minute audio-tape of a male voice disputing irrational beliefs. A second experimental group, the visualization group, listened to the same voice, disputing the same irrational beliefs using visualization techniques. The control group listened to the same voice discussing a neutral topic. A repeated measures design was used to look at reduction in communication apprehension across three assessments. No significant group effect was found.

Visualization and Rational-Emotive Therapy as Interventions for Communication Apprehension

What most Americans fear most--more than snakes, heights, disease, financial problems or even death--is speaking before a group" (Motley, 1988, p. 46). This fear is referred to as communication apprehension. According to Motley, it is an anxiety experienced by approximately 85% of the American population. Individuals often find their anxiety significant and uncomfortable enough to avoid such situations. For instance, college students, who are often faced with public speaking situations, frequently withdraw from various classes (not just communication classes) that require public speaking (Booth-Butterfield, 1988). Booth-Butterfield also explains that this can result in avoidance of preferred majors that demand enrollment in such classes, and some students even forego career paths that involve communication in front of an audience. These students may later become professionals who pass up promotions as they opt to let their coworkers take on their speaking responsibilities. The objective of this study was to examine two possible strategies designed to help college students reduce their communication apprehension.

Effects of Communication Apprehension

Fear of public speaking, or communication apprehension, is an example of generalized-context communication anxiety (CA). It is an anxiety that occurs only when confronted with performance situations involving speaking in front of an audience. A person experiencing communication apprehension is not reacting to a particular person (as in person-group CA), nor are they reacting to a certain instance of speaking in front of an audience (as in situational CA).

Anxiety experienced prior to performance is a principle concern for college students (Beatty, 1988a). An individual with a significant degree of CA often experiences verbal disfluencies such as: stuttering, omissions, and long silences (Levitt, 1967). In addition, research has found that individuals with a high level of CA deliver shorter than average speeches, avoid eye contact longer than average, and move around less; thereby reducing the effectiveness of their speeches (Pelias and Pelias, 1988). Due to the poor performance of excessively anxious students, grades often suffer, negatively influencing GPA and self-esteem. Consequently, future performances become more frightening, anxiety gradually increases, and speaking is inevitably affected. The impact is a debilitating cycle.

Butler (1986) researched personality characteristics of subjects' apprehension about communication. He found that students who experience stage fright are in the normal range of the average college population regarding personality type. Butler found that students high in CA exhibit significantly less spontaneity, less confidence, a tendency to be more conservative, and exhibit more tension and frustration as compared to students with low CA. High CA can lead to a debilitative cycle that affects GPA and self-esteem, these findings lend support for the importance of finding an effective intervention in reducing communication apprehension.

Causes of Communication Apprehension

Three main areas that contribute to communication aprehension: skills deficits, aversive conditioning, and negative cognitions. The college classroom focuses mainly on the first contributor, skills deficits. Students are instructed on how to approach an audience and how to approach a speech; yet, students who already possess sufficient speaking skills are inadequately provided with strategies on how to approach their anxiety (Ayres, 1988).

Aversive conditioning is one cause of anxiety not due to lack of skills. It involves developing negative expectations through modeling and reinforcement (Ayres,

1988). As an individual develops, learning takes place through imitation or reinforcement. Communication Apprehension can be conditioned in this manner. Public speaking is a neutral activity, but if one sees it as threatening to others, or personally experiences aversive conditioning regarding oral communication, communication apprehension can develop.

McCroskey (1984a) discussed two psychological theories that explain aversive conditioning. The first is the behaviorist view which holds that parental reinforcement serves to determine communication attitudes in children. Daly and Stafford (1984) note that when one is young, attempts are made to maximize rewards and minimize punishment. As children mature, parental reinforcement is internalized. If parents fail to encourage communication at an early age, children may grow up to fear any public demands of speaking.

McCroskey (1984a) also presents the modeling theory as the second psychological perspective regarding aversive conditioning. This theory holds that not only children, but also adults model the behavior of those in their environment. McCroskey explains that communication behavior is observed in others, and if it is reinforced, it will be modeled. According to Butler (1986), imperfections are the norm of the population--most people

do experience some symptoms of audience anxiety. Therefore, most available models in our society demonstrate a fear of public speaking.

Understanding how conditioning takes place helps to explain how a neutral activity becomes perceived as aversive. Both Beatty (1988b), and Motley (1988), explain that arousal during public speaking is not necessarily a negative occurrence. The emotion experienced is a result of labelling this arousal. Beatty notes that to a confident speaker, the arousal will be recognized as excitement. Motley (1988) adds to this observation that such arousal is interpreted as a positive sign of motivation for the impending speech. On the other hand, poor or fearful speakers read their physical symptoms as anxiety--an indication that the impending speech will probably be a negative experience. The implication is that communication apprehension is a product of negative interpretation which is usually influenced by years of conditioning; therefore, communication apprehension is difficult to overcome.

The second cause of anxiety that is not due to lack of skills is the possession of negative cognitions. McKinney and Kimsey (1989) discuss lack of control experienced by fearful speakers. A connection can be recognized between locus of control of individuals with

communication apprehension and their corresponding negative cognitions about public speaking. According to McKinney and Kimsey, individuals who explain positive reinforcement as due to luck, or negative reinforcement as due to fate, will feel little control over their future success. Daly and Stafford (1984) further discuss the impact of external locus of control on speech anxiety. The authors contend that a feeling of lack of influence over others would be accompanied by an underestimating of one's own ability. Lack of confidence in one's ability, according to Daly and Stafford, would result in the perception that the audience's reaction is more negative than it actually is. The result would be a negative expectation linked with public speaking situations. Therefore, one's cognitions in a communication situation can determine one's anxiety.

Self-acceptance also plays an integral role in communication anxiety. Daly and Stafford (1984) note that one of the most consistent findings in the literature of social-communicative anxiety is that self-esteem is inversely related to communication anxiety. Watson (1985) particularly stresses the role of self-acceptance in communication anxiety. He cites lack of self-acceptance as the reason people fail to take risks; they fear rejection. A correlation was found to exist

between high CA and low self-acceptance. Thus, Watson supported his view that self-acceptance is a significant part of CA. In addition, Daly and Stafford (1984) found CA to be positively related to "public self-consciousness," "fear of negative evaluation," and "avoidance of risk taking" (p. 133). Consequently, self-acceptance may be an important consideration in understanding communication anxiety.

Aversive conditioning and negative cognitions may both result in negative expectations, as well as negative interpretations, regarding public speaking. To reduce communication apprehension, an effective intervention might approach both of the causes. In addition, the intervention might consider the time and resource limitations of the college classroom. Two interventions for communication apprehension which may be appropriate considering restrictions of a classroom are rational-emotive therapy and visualization.

Ayres and Hopf (1987) suggest RET be used to reduce communication apprehension because this anxiety is often due to irrational, underlying beliefs which people hold (negative cognitions). Fremouw (1984) explains that irrational beliefs, which are cognitive, influence physiological and behavioral anxiety, e.g. public speaking. Albert Ellis (1977), believes that what upsets

people is not the events in their lives, but rather how people view those events. Some of the irrational beliefs (negative cognitions) identified by Ellis (1977) which correspond with irrational beliefs that cause public speaking anxiety include:

1. My unhappiness is caused by outside circumstances, and I have no control over it.
2. Dangerous or fearful things are causes for great concern, and I must continually dwell upon their possibility.
3. I must prove myself to be thoroughly competent, adequate, and achieving, or at least have real competence or talent at something I think is important like public speaking.

It may be necessary to identify and understand irrational beliefs as illogical and unjustified before change can occur.

Treatment using RET involves substituting irrational statements with more rational ones. New, rational self-statements combat the negative cognitions that contribute to communication apprehension. Suggestions for rational self-statements that can serve as substitutions for the irrational beliefs previously mentioned include:

1. Ninety-nine percent of the unhappiness we experience is not caused by the unpleasant aspects of real life events but is created internally by the things we say to ourselves about those events.
2. Worrying won't stop fearful events and in doing so, we become less able to cope. Work at handling them successfully instead. If the worst occurs, see it as unpleasant and go on. Don't regard it as an indicator that the world is awful.
3. It is impossible to really be perfect at anything, much less everything. If we were perfect, we would be anxious about falling from that position. So aim for achievement and accomplishment and see mistakes as a necessary tool for growth (Walker, 1975, p. 31).

Straatmeyer and Watkins (as cited in DiGiuseppe and Miller, 1977) also used RET as a treatment for fear of public speaking. Fifty-seven college students were pre and posttested for speech anxiety. The students who received RET as a treatment showed significant improvement over an attention-placebo group.

RET has been shown to be an effective intervention

for reducing speech anxiety (Karst, Trexler, Straatmeyer & Watkins, as cited in DiGiuseppe & Miller, 1977). This technique focuses on changing negative cognitions which are one of the leading causes of communication apprehension. RET is also compatible with the limited time and resources of the college classroom.

A second treatment for communication apprehension reduction which is appropriate for use in the college classroom is visualization as proposed by Ayres and Hopf (1987). Visualization with relaxation combines the imagery of systematic desensitization (SD) and the positive thinking of RET. It entails visualizing oneself accomplishing specific communication goals and disputing irrational self-statements. Hadley and Staudacher (1985) found that imagery (visualization) creates mental pictures that can serve as a rehearsal for new behavior. According to Restak (1984), images formed during mental rehearsal become encoded within the cerebral cortex and can be retrieved at a later time. Anxious public speakers, for instance, can imagine themselves in front of a group, feeling calm and confident. When individuals are later in the speaking situation, they can retrieve that image of confidence and have greater speaking success. It is important to treat aversive conditioning (in which past negative experiences cause present

negative expectations of oneself) and negative cognitions that are the source of communication apprehension. Visualization/imagery techniques attend to this need. Hadley and Staudacher (1985) explain that in the relaxed state that is involved with imagery, people are more susceptible to suggestion, which in turn activates bodily reactions just as if the activity were actually being performed.

It is important that visualizations are clear and involve as many of the senses as possible. Hadley and Staudacher (1985) point out: "As an activity is vividly imagined, the body's internal system reacts in exactly the same way it would if the activity were actually being performed. Neurons fire in the same pattern, and small contractions occur in the muscles involved in the imagined activity" (p. 53). Ayres and Hopf (1987) indicate that the key to visualization is its focus on positive thinking. Self-fulfilling prophecies of public speaking failures are replaced with positive images of speaking clearly and fluently. Ayres (1988) investigated the effectiveness of visualization in increasing self-reports of positive thoughts in a speaking situation. Subjects who received visualization training and practice exhibited the greatest number of positive thoughts and a significant decrease communication apprehension. Ayres

demonstrated that visualization is related to an increase in positive thinking--an important factor in reducing communication apprehension. A later study by Ayres and Hopf (1989) using visualizations in which students imagined speaking confidently, easily, and successfully, reconfirmed the previous findings that positive thinking is an important component in reducing communication apprehension. CA was found to be lower in classes that used visualization than in classes that did not.

Objective

The purpose of this research was to compare the effectiveness of two interventions suitable for use in the college classroom to reduce fear of public speaking. These interventions included RET and visualization and were selected because they were shown to be effective in reducing communication apprehension in college students in a classroom environment. A review of the literature yielded no prior studies which have paired the two interventions in one experiment. Therefore, this study not only evaluated these interventions in their effectiveness in reducing communication apprehension, as compared to an attention-placebo group, but also compared the results of the two methods.

Experimental Design

This study used a repeated measures design. The

independent variables were the type of intervention and the time of testing. The interventions were RET, visualization including RET, and a control condition. One group of college students heard an RET audio-tape; the other heard a visualization audio-tape which included RET. The attention-placebo control group heard an audio-tape on a random topic unrelated to communication apprehension. The two times of testing, the second independent variable, had three levels. Participants were tested on the first day of class, the day immediately prior to the first speech, and the day immediately prior to the second speech. Scores on McCroskey's Personal Report of Communication Anxiety-25 (McCroskey, 1978) were used as the dependent variables to measure any changes in anxiety.

Hypotheses

Since research has supported RET as an effective method of teaching anxious college students to substitute irrational, negative self-statements with more rational, positive ones, it was hypothesized that students who received RET would experience a significant decrease in communication apprehension compared to the attention-placebo group in the third testing condition.

Support has also been found for the effectiveness of visualization in reducing fear of public speaking in

college students (Ayres and Hopf, 1987 & Ayres, 1988). Since visualization not only teaches more positive thinking (counteracting negative cognitions) with an RET dimension, but also produces new, reinforcing images connected with public speaking (counteracting aversive conditioning), it was hypothesized that students receiving visualization as an intervention would show the greatest decrease in communication apprehension in the third testing condition when compared to the RET group and the attention-placebo group.

Method

Participants

Four undergraduate public speaking classes were selected at a mid-size, middle Atlantic states public university. Two instructors, a male and a female each taught two sections of the four classes. Three of the classes were morning classes, and one class was taught by the female professor in the evening. Students in each class were randomly assigned to one of three groups: an RET group, a visualization group, and an attention-placebo group control group. Then like groups were matched to form a larger pool receiving each treatment. The participant group included 70 students on the first day of class; however, due to attrition over the course of the study, only 47 students were used for analysis.

Participants were excluded from the study if they dropped the class or were absent during any of the three testing sessions. The visualization group contained 18 students, the RET group had 14 students, and the control group had 15 students.

Instrument

Communication apprehension was measured using McCroskey's 25-item, self-report scale: the Personal Report of Communication Anxiety (PRCA-25). In 1970, McCroskey developed the first Personal Report of Communication Apprehension which was a 20-item, 5-step, Likert-type self-report scale (McCroskey, 1984b). This instrument was modified by McCroskey in 1978 to a 10-item and a 25-item scale, and again in 1982 to a 24-item scale; all of which maintained the 5-step, Likert-type aspects.

McCroskey (1978) discussed the reliability and validity of the PRCA-10 and the PRCA-25. Both were described as the best measures for communication apprehension above grade ten; particularly with college students. Individually, the PRCA-25 exhibited a reliability of .92-.96 over a number of studies, with a test-retest reliability of .82. In scoring this form, the range is from 25-125 with a mean of 73-35 and a midpoint of 75. The standard deviation for the PRCA-25

is 13-15. McCroskey (1984b) recommends giving the long form preference when choosing an instrument to measure CA.

The appropriateness of self-report measures was pointed out by McCroskey in "Self-Report Measurement" (1984b). He noted that communication apprehension involves cognitions. Self-report measures allow fearful speakers to express their feelings about public speaking. McCroskey also indicates that self-report scales are the most commonly used measures of stage fright.

Procedure

On the first day of class, all students completed an informed consent form, which they read, signed, and returned to the class instructor. At this time, students were assured of complete confidentiality and anonymity. They were told to identify themselves only by a number which they would consistently use on all of the proceeding assessments. Assessment for communication apprehension, using the PRCA-25, took place immediately after the forms were signed. This controlled for any confounding effects that the teachers and/or the textbook might have had. A demographic questionnaire on which students indicated their gender, age, year in school, major, and number of previous speaking courses was also completed at that time.

Prior to the first speech, both instructors dealt with the topic of communication apprehension. The male instructor briefly discussed the material in the text regarding communication apprehension. He mentioned that communication apprehension is a natural phenomenon, and can even be beneficial when giving a speech. The female instructor approached fear of public speaking by having students give a pantomime before their first actual speech. The pantomime exposed students to the experience of standing in front of the class, without adding the extra demand of speaking.

On the day before the first speech, students were tested for communication apprehension again. Following the initial speech, one day of class was devoted to the interventions. Treatments for all groups were conducted in the same class period with each group in a different classroom.

From handouts they received, the RET group read the irrational beliefs described earlier in this report and the rational self-statements regarding public speaking. Students then listened to a 20 minute audio-tape of a male voice that explained RET and how to use it, and then instructed them to silently repeat the new, positive suggestions. The students were instructed to employ the positive self-statements when practicing and delivering

their future speeches.

The visualization group read the same irrational beliefs and suggested rational self-statements regarding public speaking. They listened to a 20 minute audio-tape of the same male voice explaining how visualization helps reduce communication apprehension. Then they were guided through a visualization of practicing positive self-statements, which disputed irrational beliefs (the same statements presented to the RET group), and saw themselves successfully delivering a speech. Finally, the visualization group was instructed to practice this technique before future speeches and use the positive images during the speeches to enhance their confidence.

While the two interventions were being administered, the attention-placebo group listened to an audio-tape of the same male voice discussing a topic not related to CA--careers in speech communication (Weitzel, 1987).

Following all of the audio-tapes, students completed a brief, five-item questionnaire to assess their understanding/agreement with the information they heard. On the day before students delivered their second speech, the PRCA-25 was administered for the third and final time to measure communication apprehension.

The scores from the three administrations of the PRCA-25 were compared and an analysis of variance was

used to analyze the results. The three levels of between-group variables were RET, Visualization, and the attention-placebo interventions. The within-group variables had three levels which include the scores on the first day of class, the scores prior to the first speech, and the scores prior to the second speech. A scatterplot was used to determine if there was a correlation between understanding of tape content and reduction in communication apprehension. To examine the relationship between understanding of the information and which group and class subjects were in, an ANOVA was also performed. Post hoc tests were used to distinguish differences in times of testing, as well as differences in understanding of tape content.

Results

In order to assure equivalence of groups before examining other relationships, a one-way analysis of variance was performed for the first day of assessment. There were 18 students in the visualization group, 14 in the RET group, and 15 in the attention-placebo group. At the .05 level of significance, the groups did not differ on the first day of assessment.

An analysis of variance was performed to examine the effect of group on reduction in communication apprehension. The ANOVA revealed no significance,

$F(2,44)=.55$, $p>.05$ as indicated in Table 1; thereby, failing to support the two hypotheses of the study.

Insert Table 1 about here

The first hypothesis was that students who received the RET intervention would experience a significant decrease in communication apprehension compared to the attention-placebo group in the third testing condition. The change in mean scores for the RET group ($M_1=73.29$, $M_2=70.57$, $M_3=70.29$) was not significant when compared to those of the attention-placebo group ($M_1=65.60$, $M_2=65.93$, $M_3=63.13$) across the three days of assessment.

There was also lack of support for the second hypothesis that students receiving visualization as an intervention would show the greatest decrease in communication apprehension in the third testing condition when compared to the RET group and the attention-placebo group. The visualization group's mean scores from the first to the third assessment were $M_1=66.33$, $M_2=65.44$, and $M_3=62.17$. In comparison, the RET groups' scores were $M_1=73.29$, $M_2=70.57$, and $M_3=70.29$, and the attention-placebo groups' scores were $M_1=65.60$, $M_2=65.93$, and $M3=63.13$.

Data were also analyzed to examine other

relationships among variables in the study. The analysis of variance revealed a significant within-group effect of assessment on reduction of communication apprehension, $F(2,44)=4.77$, $p=.011$. Means for the entire population indicated scores of 68.17 on the first day of class, 67.13 prior to the first speech, and 64.89 prior to the second speech. To investigate the significance indicated by the day effect, t-test pairs on days of assessment were run. The results produced no significant difference between the first and second assessments, $p>.05$. However, significance was found in the difference between the first and third assessments ($p<.01$) and the second and third assessments ($p<.05$).

The effect of class assignment on communication apprehension from the first to the second assessment was analyzed with an analysis of variance. The ANOVA did not support any significant effect of class, $F(3,43)=.276$, $p>.05$.

An analysis of variance was also performed on the independent variable gender as it related to change in communication apprehension from the first to the second assessment. No effect of gender on score of the PRCA-25 was discovered, $F(1,45)=.067$, $p>.05$.

Changes in scores on the PRCA-25 were then subjected to a Pearson r correlation analysis to examine the

relationship between score change and subjects' understanding/agreement with tape content. No significant correlation (r=-.053, p>.05) was found.

An analysis of variance was then used to investigate effect of class, gender, and group with understanding/agreement with tape content. A main effect was found for group ($F(2,44)=6.62$, $p<.05$) and a main effect was found for class ($F(3,43)=2.88$, $p<.05$). However, no interaction effects were present between group and class. Gender was not significantly related to understanding/agreement with tape content, and examination of three-way interaction effects also revealed no significance ($p>.05$).

Post hoc tests were also run to further examine the main effects of group and class.

The Scheffe test for analyzing the understanding by group (as measured by a self-report scale of one to five, with one indicating no understanding of tape content and five indicating complete understanding) revealed significantly more understanding by the visualization group (M=4.24) than by the RET group (M=3.79) or the attention-placebo group (M=3.62) at the .05 level.

Post hoc tests were also run to investigate group differences within the day effect. T-test pairs revealed that the visualization group's scores did not

significantly decrease over the three days of assessment ($p>.05$). However, the change in scores from the first to the second assessment and the first to the third assessment for the RET group was significant at the .05 level. The attention-placebo group exhibited significant change from the second to the third day of assessment ($p=.001$).

Discussion

The results of this study failed to support the main hypotheses presented by the experimenter. Neither the visualization, nor the rational-emotive therapy interventions produced a significant reduction in communication apprehension when compared to the control group, nor did the results indicate a significant difference of reduction in communication apprehension between the RET group and the attention-placebo group. These findings are contrary to those of Karst and Trexler, as well as those of Straatmeyer and Watkins (as cited in DiGiuseppe and Miller, 1977) who found groups receiving REt to demonstrate a significantly greater reduction in speech anxiety over attention-placebo groups. An important component in previous studies with RET involves homework-practice. In this study, a single, twenty minute exposure to RET may not have been sufficient for change to evolve.

The visualization intervention did not significantly reduce communication apprehension despite previous research findings by Ayres and Hopf (1989). Hadley and Staudacher (1985) demonstrated that imagery creates mental pictures that can serve as a rehearsal for new behavior. However, they stress that vivid images are important in order for change to occur; images that involve all of the senses and, in which, the individual experiences the images from a subjective point of view. Students in the visualization group were given a brief introduction to visualization and a minimal exposure to the technique. More than a one-time intervention may be essential in helping students develop the skill of using visualization effectively.

The analysis of variance did yield a significant within-group effect of day of assessment on reduction in communication apprehension. In order to identify which days differed significantly, dependent t-tests were run. Significant differences were found between the first and third days, and between the second and third days of assessment. The significant changes in communication apprehension occurred during the period in which the interventions were instituted. Yet, since there was no significant main effects for group, this would suggest that variables other than the individual interventions

may have contributed to the change. One possible contributor to reduction in communication apprehension may have been the experience of giving the first speech. A positive first time experience in front of an audience can lead to reduced communication apprehension as discussed by Ayres (1988). Another possible explanation for reduction in communication apprehension may be explained by situational communication anxiety. McCroskey (1984a) stated that aspects of a particular situation can cause anxiety. Therefore, it is possible that the reduction in student communication apprehension was due to increased familiarity and comfort with the class or instructor over time.

Analyses of variance examining the effects of class and gender to change in communication apprehension from the first to the second assessment were run. The purpose of these analyses was to determine if communication apprehension was influenced by these variables rather than the interventions which occurred between the second and third assessments. No significant effect was found with either variable. Therefore, it does not appear that reduction in scores across days was related to class or gender.

Post hoc tests were performed to follow-up on these main effects. The Scheffe test analyzing the

understanding by group illustrated significantly more understanding of tape content by the visualization group than the attention-placebo group. This may be due to the level of involvement (relaxation and imagery exercise) that the visualization group experienced.

Attrition may have been a contributor to the insignificant reduction in anxiety as it related to groups. Subjects' class attendance was inconsistent; thereby, diminishing the total number of scores available to examine across assessments. The number of subjects varied between 70 and 47. In future studies, it is recommended that a larger subject pool be used.

A second recommendation for future research involves a no contact control group. Scores of communication apprehension significantly changes across assessments; however, this change was not related to the intervention, class, or gender of subjects as shown by the ANOVAs. Previous research by Karst and Trexler (as cited in DiGiuseppe and Miller, 1977) has shown significant differences between experimental and no contact control groups.

Most importantly, future research might also look at length of exposure to the interventions. Practice is an important part of any new skill. It cannot be assumed that subjects practiced on their own although they were

instructed to do so. Repeated exposure in class could exert a more significant impact and help distinguish between the effects of visualization and RET on speech anxiety. Since the visualization group demonstrated significantly more understanding of tape content than the other two groups, this may indicate retesting at later intervals may produce lower CA scores for this group. Communication apprehension is the result of a variety of factors, including locus of control (Daly and Stafford, 1984) and self-acceptance (Watson, 1985). These factors may necessitate long-term interventions for change to occur.

Finally, although the ANOVA indicated no between-group effects, within-group effects were revealed for day. In other words, students' scores decreased significantly over testings, but this was not due to the interventions. Since ANOVAs with class and gender illustrate no significant impact in these areas, other options might be explored in future studies. It may be that the experience of delivering the first speech helped students relax. Thus, it would be interesting to compare classes who receive interventions presented before their first speech to classes who receive them after that initial effort. If communication apprehension is automatically reduced due to the actual experience of

giving one speech, this would lend support to the theory of aversive conditioning (reinforcement) as a cause of communication apprehension. Daly and Stafford (1984) suggest that people tend to maximize rewards and minimize punishment with regard to public speaking. Negative speaking experiences inhibit future desire to speak; positive experiences can lead to reduction in anxiety. This could have important implications for visualization which attends to this cause. With successful mastery of the technique, students could mentally enact the experience of giving a speech even prior to their first time; thereby, reducing anxiety associated with speaking at any point.

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Table 1

Main and Interaction Effects of ANOVA

Source of Variation	SS	df	MS	F	Sig. of F
MAIN EFFECTS					
Group	1295.09	2	647.55	.81	.449
Day	247.85	2	123.92	4.77	.011
INTERACTION EFFECTS					
Group by Day	56.89	4	14.22	.55	.701